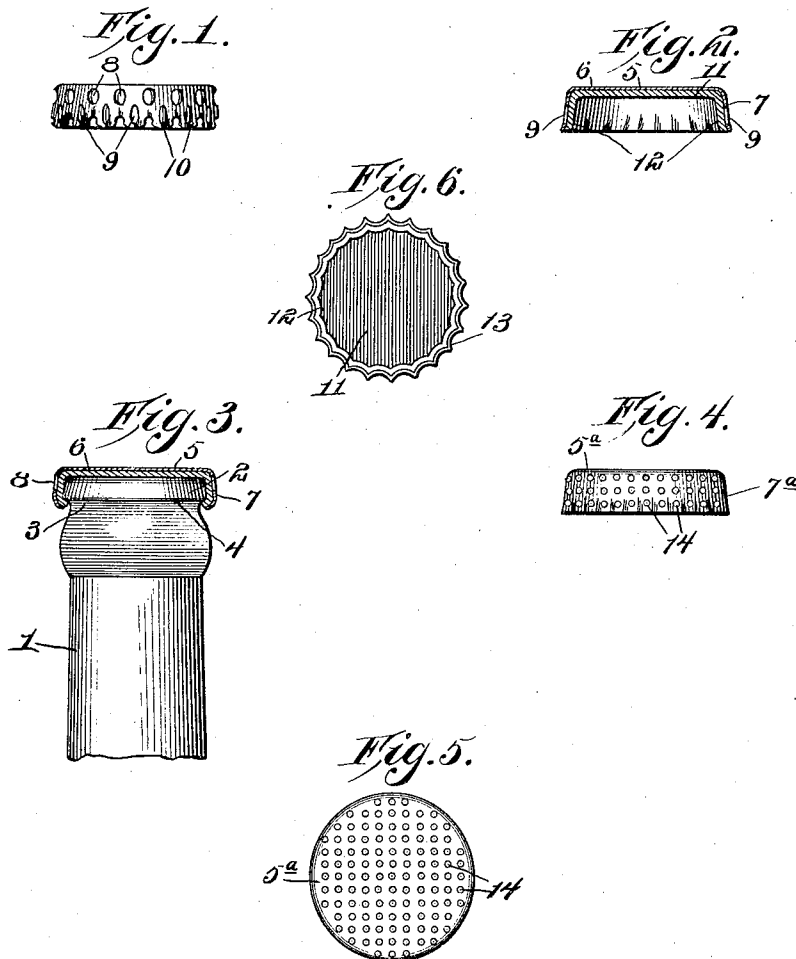


No. 868,225.

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C. SCHÖNERT & R. SCHWEITZER.  
BOTTLE CLOSURE AND SEAL.

APPLICATION FILED SEPT. 22, 1906.



Witnesses

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# UNITED STATES PATENT OFFICE.

CARL SCHÖNERT AND ROBERT SCHWEITZER, OF NEWARK, NEW JERSEY.

## BOTTLE CLOSURE AND SEAL.

No. 868,225.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed September 22, 1906. Serial No. 335,794.

*To all whom it may concern:*

Be it known that we, CARL SCHÖNERT, a subject of the Emperor of Austria, and ROBERT SCHWEITZER, a citizen of the United States of America, both residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Bottle Closures and Seals, of which the following is a specification.

This invention relates to bottle closures and seals of that type comprising a sheet metal cap containing a sealing disk. Caps of this character are usually struck up from tin plates and applied over the mouth of the bottle, the flange of the cap being crimped or interlocked with an external shoulder on the bottle neck. Ordinarily caps of this character require the use of a special construction of capping apparatus to apply the same to the bottle, the resistance of the usual imperforate flange of the cap and its tendency to spring outward after the compression of the applying device is removed therefrom tending, in many cases, to destroy the effectiveness of the cap as a seal for bottles of that class containing charged liquids. Another objection to this class of fastenings is that owing to the direct contact of the flange with the neck the latter is liable to break under the metallic pressure in the extraction of a refractory cap from the bottle. Furthermore, a ring of rust is liable to form around the neck adjacent the edge of the flange of the cap, rendering the bottle unsightly and unsanitary. One of the objects of the present invention is to provide a metallic cap which may be easily applied in position without the necessity of exerting undue compression, and which may, therefore, be placed in position on the neck by simpler forms of applying devices than those in common use.

Another object of the invention is to provide a cap and seal so relatively constructed and arranged that the seal will form a cushion between the neck of the bottle and flange of the cap, thus rendering the cap less liable to breakage and avoiding liability of the neck being broken during the act of extracting the cap from the bottle.

A still further object is to provide a cap and seal which are simple of construction, inexpensive of production and will effectually prevent leakage of the confined liquid and gases.

In the accompanying drawings,—Figure 1 is a side elevation of one form of bottle cap embodying our invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a view similar to Fig. 2 applied to the neck of a bottle. Fig. 4 is a side view of a modified form of cap. Fig. 5 is a top plan view thereof. Fig. 6 is a bottom plan view of the cap and seal.

Referring to the drawings, 1 represents the neck of a bottle, which is provided with an annular external rim 2 and an underlying groove 3 forming a shoulder 4 at the base of said rim.

The cap 5 is of conventional form, consisting of a head 6 having a depending annular holding flange 7. In accordance with our invention as disclosed in Figs. 1 to 3, inclusive, the flange 7 is provided with annular rows of holes or perforations 8 and 9, the upper row 8 sufficiently weakening the flange adjacent its point of junction with the head 6 to permit said flange to bend more freely at the angle in crimping it inward for engagement with the rim 2 and shoulder 4. The lower edge of the flange is cut away or fluted to provide locking tongues 10 spaced at regular intervals apart and separated sufficiently by the intervening recesses to permit them to be bent easily and freely under the shoulder 4, thus obviating the necessity of exerting objectionable pressure to crimp or compress said flange into locking engagement with the bottle neck. This bending action of the tongues is further facilitated by arranging the lower set of openings 9 so that they will project partially within the tongues, thus enabling them to be bent with greater freedom. This construction permits a very simple form of applying device to be employed to fit the caps on the bottle neck.

In conjunction with the cap we employ a seal comprising a disk 11 adapted to rest in the usual manner against the head 5 and between the same and rim 2 and to close the mouth of the bottle or opening in the neck, said disk being provided with a depending flange 12 co-extensive or substantially so in depth with the cap flange 7. The seal is preferably composed of paper impregnated with paraffin, or some other suitable pore closing medium, and it will be observed that the flange 12 thereof is adapted to be forced by the inward crimping or compression of the flange 7 against the side of the rim 2 and under the shoulder 4. By this means a layer or cushion of soft material is interposed between the hard metallic flange of the cap and the neck of the bottle, thus preventing the formation of rust and its deposit on the bottle and preventing direct contact of the cap flange with the neck. As a result, the sealing action of the disk is greatly increased, and as a cushion is formed between the flange 7 and rim 2, breakage of the rim by direct pressure by the hard metallic flange thereon during the extraction of a refractory stopper will be prevented. Hence there is no liability of injury to the bottle from the extraction of the cap nor of particles of glass getting into the bottle and forming a source of danger to the consumer of its contents.

In Fig. 6 the construction of the seal is more particularly shown, and therein it will be seen that the lower

edge of the flange 12 is preferably crimped or corrugated, as shown at 13, allowing the flange to contract for the more effectual compression of the cap flange 7.

In the form of the invention disclosed in Figs. 4 and 5 the cap is of ordinary form, but both the head 5<sup>a</sup> and flange 7<sup>a</sup> thereof are provided with perforations 14 closely arranged and forming a sieve-like structure. This mode of weakening the cap material permits the cap to be bent freely into engagement with the rim, while the form of seal will effectually obviate all liability of leakage.

Having thus described the invention, what is claimed at new, is:—

1. A bottle cap provided at the lower edge of its flange with locking tongues and having perforations therein to secure greater flexibility of the tongues.
2. A bottle cap having a depending flange provided with a scalloped lower edge forming inwardly bendable locking tongues and provided with a row of openings partially projecting into said tongues, whereby the metal is weakened for greater flexibility of the tongues.
3. A bottle cap having a depending flange provided with a scalloped lower edge forming tongues and upper and lower rows of openings, the upper row of openings being

arranged adjacent to the upper edge of the flange and the lower row of openings projecting partially into the tongues to weaken the same, substantially as described.

4. As a new article of manufacture, a metallic bottle cap having its flange provided with annular rows of openings, said rows being respectively arranged adjacent the lower edge of the flange and adjacent its point of juncture with the top of the cap.

5. As a new article of manufacture, a metallic bottle cap having its flange provided with annular rows of openings, said rows being respectively arranged near the lower edge of the flange and near its point of juncture with the top of the cap, the openings of one row alternating in arrangement with the openings of another row.

6. A bottle seal comprising a cap having weakening openings in the flange thereof, and a flexible seal lining the whole of the interior of the cap, said seal having its flange corrugated to be bent inwardly with the weakened flange of the cap into interlocking engagement with the shoulder of the bottle.

In testimony whereof, we affix our signatures in presence of two witnesses.

CARL SCHÖNERT.  
ROBERT SCHWEITZER.

Witnesses:

EMIL GERMANUS,  
WICENT PAWTORKI.